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Policy

The U. S. Navy Medical News Letter is basically an official Medical Department publication inviting the attention of officers of the Medical Department of the Regular Navy and Naval Reserve to timely up-to-date items of official and professional interest relative to medicine, dentistry, and allied sciences. The amount of information used is only that necessary to inform adequately officers of the Medical Department of the existence and source of such information. The items used are neither intended to be nor susceptible to use by any officer as a substitute for any item or article in its original form. All readers of the News Letter are urged to obtain the original of those items of particular interest to the individual.

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Control of Leukemia

Because little is known about the control of leukemia, it may be best to discuss some of the fundamentals of this disease, and to review very briefly what little information is available on the subject.

Leukemia is one form of generalized white-cell-system proliferation. Various types of proliferative processes and several different white-cell systems may be identified. The white cells are derived from four different sources: the bone marrow, the lymphoid system, the reticuloendothelial system, and the system of plasma cells (plasmocytes). These "systems" are all diffusely scattered throughout the body, and all produce leukocytes, some of which eventually find their way into the blood.

Although impressions obtained from reviews of clinical material may be faulty, a few carefully controlled observations indicate that the incidence of leukemia is increasing, not only as a diagnosis but also as an actuality.

If there is an actual increase in leukemia, what is causing it? Is it possible that the increasing complexity of present-day civilization, with its numerous chemical and radiologic contacts, is a factor? There can be no doubt that people are surrounded by all kinds of possibly harmful chemicals and medications. In the air are exhaust gases from automobiles and the fumes of tars from the roads. Potent chemicals are imbibed as medications, and many of them are absorbed in the form of ointments and lotions. Even foods may contain not entirely inert chemicals for preservative purposes. X-rays are used more and more frequently.

The outstanding possibilities of the etiology of leukemia may be summarized. Myelotoxic agents, such as x-rays and chemicals, if they produce sufficient destruction, may eventually lead to an abnormal, leukemic proliferation, at least in some (hereditarily predisposed?) persons. Viruses, latent perhaps for years and transmitted "vertically,"--that is, from one parent or the other to offspring,--may result in leukemia either by their own activities or through the mediation of such activators as x-rays and chemicals.

Except in the acute cases x-ray therapy for leukemia has been standard procedure for years. In acute leukemia, unfortunately, it usually makes the situation worse, and in the continued therapy of the chronic case, its action has often left much to be desired. Furthermore, x-ray therapy is nonspecific, and requires the services of highly skilled specialists and expensive equipment. With the development of the newer chemotherapeutic methods, some of them highly effective, this therapeutic modality may soon be discarded in the treatment of the white-cell proliferative diseases. The results of radioactive isotope therapy, from which so much was expected, were disappointing. In the acute cases it is of no value, and its only value in the chronic ones is in the granulocytic variety, in which it is usually no better than x-ray therapy. Polycythemia vera, which may be more or less closely related to chronic granulocytic leukemia, is, to be sure, affected favorably, but there is some question about possible after-effects such as acute leukemia. On the other hand, chemotherapeutic methods have evolved rapidly in the last decade, and show distinct promise, especially in selective therapy.

Although Fowler's solution was introduced in the 1860's, and benzene in the 1900's, chemotherapeutic methods for the treatment of leukemia and related states were not used to any great extent until the war years of the 1940's, when nitrogen mustard was introduced. It was soon apparent that the latter material was often highly beneficial in Hodgkin's disease, especially when the process was generalized and systemic symptoms were present. In some cases of generalized lymphosarcomatosis, its use was often attended with spectacular and long-sustained remissions. However, in the leukemias themselves it was of no particular value. On the other hand, urethane was found to be helpful in maintaining the x-ray-induced remission of chronic granulocytic leukemia and in the therapy of multiple myeloma. A number of other chemicals were then introduced, of which the most important in the author's judgment are aminopterin, triethylene melamine (TEM), and the hormones, ACTH and cortisone.

It is possible at this point, approximately 10 years after the first therapeutic efforts with these potent chemical agents, to summarize briefly what has been learned from their use.

In the first place leukemia, even of the acute type, represents a possibly reversible disease. It is true that the reversal may be only for short periods, but the mere fact that it is possible not only to stop a rapidly growing, highly invasive growth process but also to restore the normal, orderly growth process in lymphoid and marrow tissues is the most important lesson that can be learned from these studies. For, if the proliferation can be stopped for a few months, perhaps it can be stopped for a few years; if it can be stopped for a few years, perhaps it can be stopped for a number of years. Thus, conceivably, eventually a disease process might be evolved that was perhaps not curable but controllable; it would matter little whether the disease was cured, so long as the patient remained clinically in good health.

Secondly, the antileukemic agents possess a certain degree of specificity. Thus aminopterin is most useful in the acute lymphocytic leukemia of childhood, TEM in chronic lymphocytic leukemia and lymphosarcoma, and myleran in chronic granulocytic leukemia. With the host of chemicals that it is possible to synthesize, the possibilities of specific agents for specific diseases seem to be good.

Thirdly, the antileukemic agents may act through entirely different cellular mechanisms. Thus aminopterin owes its activity to its folic acid antagonism, ACTH probably to its lymphocytic inhibitory nature, and 6-mercaptopurine, one of the newer agents, to its activity an an antagonist to nucleic acid production. With increasing knowledge of cellular chemistry and of enzyme systems, it is highly probable that other specific chemical and enzymatic antagonists will be evolved.

Finally, the antileukemic agents, except for ACTH and cortisone, have one feature in common--that is, their myelotoxicity. This is true not only for aminopterin, TEM, HN2, urethane, myleran, and 6-mercaptopurine but also for x-rays and radioactivity in general. Thus, it appears that, for an agent to be of value therapeutically, it must also have marked myelotoxic properties. What this means is not entirely clear. One way of looking at the problem is as follows: the chemical must destroy all the abnormal cells; in so doing, the marrow cells are also destroyed; when growth returns, normal growth returns first. Later, abnormal growth reappears and the process is repeated. If this were so, every myelotoxic agent should act in a similar manner, but it is not so, because a certain degree of specificity is observed. In any event, it appears that, to obtain a good therapeutic result in many cases, it is necessary to go to the point of serious bone-marrow injury.

There are indications that leukemia, instead of being a hopeless disease, may eventually be controlled. Here both the investigators in their laboratories and the practicing physician can be of help. Investigators have outstanding opportunities, which may be listed as follows: examination of the cultural, chemical, and enzymatic characteristics of normal and leukemic cells; study of possible etiologic agents, with particular reference to the experimental production of leukemia by chemicals, x-rays, and viruses; and continued search for specific chemotherapeutic agents. It is of course possible (as in other conditions) that agents capable of causing complete and sustained reversal of various leukemic states will be developed long before the cause of the disease is known or the reason for the therapeutic action is discovered. (New England J. Med., Jan. 28, 1954, W. Dameshek, M. D.; Department of Medicine, Tufts College Medical School, Boston, Mass.)

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Drugs Preventing Motion Sickness at Sea

The treatment of motion sickness remains eclectic and empiric. Scopolamine alone or in combination with other belladonna alkaloids, antispasmodics, barbiturates, and the ever-increasing procession of antihistamines have been given by mouth, by rectum, or both in various combinations and dosages. The results are sometimes good, sometimes alarming, but too often indifferent. Individual response to present methods of therapy seems as varied and unpredictable as individual susceptibility.

On the side of prevention the outlook is somewhat brighter. Johnson and co-workers have shown that the incidence of air sickness can be significantly reduced by limiting the movements of the head by means of fixed headrests and by fixed visual attention, thus preventing gyroscopic precession. However, the utility of such mechanical contrivances is limited. More practical is the use of prophylactic drugs.

Until the incidental observation of Gay and Carliner on the action of Dramamine in preventing car sickness, the principal classes of drugs employed for the prevention of motion sickness were the solinaceous series and the barbiturates. It is well known that several of these drugs alone, or combined with others, afford excellent protection. But it is axiomatic that the degree of protection is in proportion to the manifestation of untoward side-effects. With the dramatic advent of Dramamine, there ensued a revival of interest in prophylactic drugs, especially in other antihistamines. (Gay and Carliner had, in the meantime, demonstrated the potent prophylactic action of Dramamine against seasickness.) This renewed interest in anti-motion-sickness drugs led to the development of better controlled screening techniques for the evaluation of the new and for the re-evaluation of some of the older remedies under actual conditions requiring their use.

Chinn and co-workers at the USAF School of Aviation Medicine, Randolph Field, Tex., developed a technique for critically screening, under actual flight conditions, various preparations for the prevention of airsickness. In 1950, the same group evaluated the effectiveness of several drugs in preventing seasickness under actual conditions requiring their use.

This initial undertaking was later extended as a joint Air Force-Navy-Army project for large-scale screening of anti-motion-sickness preparations. This is the fourth report of the cooperative study. The primary purpose of the present undertaking was to re-evaluate diphenhydramine HCl (Benadryl), scopolamine hydrobromide, and p-chlorobenzyhydryl-m-methyl benzyl ethyl-enediamine-di HCl (Postafene or Bonamine), all of which were already established as effective preventives of seasickness. Further testing was undertaken in order to determine the drug of choice, and the optimal dosage schedule required to afford maximal protection with minimal side-effects. In addition, enough subjects were available to test

chlorpromazine (Thorazine), a preparation reported to prevent swing sickness in dogs as well as emesis in a variety of clinical conditions, and 1-dimethylamino 2(2'benzyl r'chloro) phenoxyethane hydrochloride whose pharmacological properties suggested a trial. Further trials of scopolamine hydrobromide were suggested on the basis of the recent excellent results with large doses reported by Glaser and Hervey.

Previous tests at sea by American investigators have shown that scopolamine hydrobromide in doses of 0.75 mgm. 3 times a day gives significant protection but elicits unpleasant and even dangerous side-effects; dry mouth, blurred vision, and, in 1 case, hallucinations. In a succeeding study, when 25 mgm. of Benadryl hydrochloride mixed with 0.35 mgm. scopolamine hydrobromide given 3 times a day was tested, no significant side-effects were reported, neither was the protection afforded significantly greater than that of Benadryl alone in doses of 50 mgm. 3 times a day.

Scopolamine aminoxide hydrobromide (Scopodex), a preparation reputedly singularly free of the usual side-effects, was evaluated in doses of 2 mgm. 3 times a day on the same trip with near disastrous results: 11 of the 96 subjects suffered hallucinations with complete disorientation as to time and place; 1 became frankly manic; and the incidence of blurred vision, dry mouth, tinnitus, or headache was significantly high. (This preparation is still on the market advertised as a preventive for motion sickness.) It would seem that these consistently recurring symptoms attending the frequent administration of scopolamine should be sufficient to contraindicate its use as a prophylactic agent for motion sickness where continued dosage is required. However, the results obtained with scopolamine hydrobromide by Glaser and Hervey in Great Britain are somewhat at variance with those reported above. These investigators found that a 1-mgm. oral dose of the drug taken 1 hour prior to exposure protected 90% of susceptible individuals from fairly violent motion at sea and from that induced by waves artificially generated in a swimming pool; and that a dose of 0.65 mgm. may be effective but that the degree of protection was lower under severe conditions. The only side-effect noted was dry mouth. These investigators state that it is inadvisable to exceed 2 mgm. in 24 hours with this level not to be maintained longer than 48 hours. They gave 2.7 mgm. in 48 hours with no ill-effects.

Possibly the apparent discrepancies may be explained on the basis of the differences in experimental design of the British and American tests. Glaser and Hervey tested the drug on a small number of selected subjects exposed to short periods of turbulence at sea or in swimming pools whereas the results presented here were obtained on a large, unselected, homogeneous population exposed for a much longer relative period to the violent motions so often encountered on the eastward crossing of the North Atlantic in mid-winter.

Diphenhydramine was employed in the present study as the positive control and again, as on other tests, stands out as significantly superior or equal to the other drugs tested in affording maximal protection with minimal side-effects. Because it seems well-established that the diphenhydramine is the effective protectant of both diphenhydramine hydrochloride (Benadryl) and diphenhydramine 8-chlorotheophyllinate (Dramamine) and because the former is 66% cheaper than the latter, it should follow logically that the economy-minded would stock diphenhydramine as a prophylactic drug for motion sickness. Such is not the case.

The ideal prophylactic agent for motion sickness would be an inexpensive drug that in a single, small dose affords maximal protection over a long period of time with minimal side-effects. On a previous trip the long-acting antihistaminic Postafene given only once daily in a 50-mgm. dose was impressive by affording significant protection. Laboratory tests with this drug by its manufacturers had shown it to be effective for 72 hours. As shown in the results of this study, 50 mgm. of the drug given only once, at the time of sailing, offered significant protection free of side-effects to 43.3% of 150 subjects. The positive control (Benadryl) in doses of 50 mgm. 3 times a day afforded 62% protection.

Three drugs, scopolamine hydrobromide, Benadryl, and Postafene, were re-evaluated as preventives of motion sickness. In the doses employed, Benadryl and Postafene afforded significant protection with few untoward side-effects; scopolamine offers no protection and is conducive to the significant clinical side-effects.

From the standpoint of long-time protection afforded by a single dose, Postafene is most promising.

On the basis of its performance on this and several other tests and its lower cost relative to other drugs equally efficacious, when continued dosage is required, it is suggested than Benadryl be adopted as the motion sickness prophylactic drug of choice pending the availability of a cheaper or more effective preparation. (Research Project NM 005 052. 32. 01, Jan. 1954, Naval Medical Field Research Laboratory, Camp Lejeune, N. C. ; CDR S. W. Handford (MSC) USN, CDR T. E. Cone, Jr. (MC) USN, Lt. Col. H. I. Chinn, USAFR (MSC), and Col. P. K. Smith, USAFR)

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Radio Transmission of Physiological Information

The pilot of a high-speed jet fighter races his airplane down the runway, pulls it into the air, and points its nose high above the horizon. The hands on several of the clocklike instruments before him move slowly to new positions to warn him of adverse changes in engine temperature and loss of power. He reaches down and adjusts controls to bring the engines

back to normal. If his corrective measures should fail, he would guide the airplane down to a compatible altitude or a safe landing. However, there are no dials to measure the physical and functional changes that are taking place simultaneously in the body and mind of the pilot. He has no one to guide him down and bring him home if he fails or if his mental or physical functions become impaired. His only guide to his own condition is his sense of well-being which characteristically gives him an exaggerated sense of bodily health in the presence of the oxygen deficiency that waits at high altitudes to ensnare pilots in a trap of death. Impending unconsciousness due to lack of oxygen is accompanied by body comfort, absence of pain or distress, and a rise in spirits. The pilot's future and that of his airplane are dependent upon his perception of his own impairment, but the impairment destroys his perceptive abilities.

The airplane pilot and the airplane that he flies form a vital combination. The continued existence of each depends upon a continuation of the normal functions of both. The pilot makes more or less continuous observations of the physical state and functional efficiency of the airplane and its engine in order to make adjustments and, if necessary, to change his flight plan in order to insure against aircraft failure. The pilot is unable, however, because of lack of equipment and the loss of perception that accompanies his impairments, to make observations on his own physical and mental condition. Such observations can be made only by a qualified observer who must, because of the physical limitations of the airplane and other reasons, be at a remote location. A physician making continuous measurements of a flying pilot's physical condition could read and interpret the warning signals and call for immediate action designed to safeguard the pilot and airplane.

The need for a system for making observations on the physical condition of pilots while they are in the air is clearly demonstrated on aircraft accident reports. Approximately 65% of aircraft accidents are attributable to pilot failure. Some of these have been due directly to physical failure of the pilot. Others have been due to mental failure which was precipitated by alterations in the pilot's physical condition. Only about 30% of aircraft accidents are attributable to mechanical failure of airplanes and engines. About 5% have been due to unknown causes.

One task is to define human tolerance to the physical forces and physical environment of high-speed, high-altitude flight. Another is to develop, test, and evaluate equipment for bolstering these tolerances. What are the normals and limits of physiological change associated with patterns of flight employed by combat pilots at combat altitudes and speeds? Are artificial cockpit pressures and oxygen supplies adequate? Is adverse physiological change regularly associated with high-altitude flight in present-day equipment? The system for transmitting physiological data described in this report is designed to yield information on these questions.

The transmitting system, as developed, is composed of four parts:

1. A set of transducers which gathers information from the pilot and his equipment and converts it into electrical energy suitable for radio transmission.

By means of these transducers the following physiological data can be transmitted to the observer: electrocardiogram, electroencephalogram, skin and body temperature, and respiratory rate and volume.

2. An ultra-high-frequency, frequency-modulated radio transmitter.
3. An ultra-high-frequency radio receiver.
4. Recording and presentation equipment.

This system for transmitting various items of physiological data has been developed and tested successfully. The system offers a means of ascertaining the physiological conditions of pilots engaged in potentially hazardous flight in sufficient time for corrective measures to be employed. In addition, the system offers a means for the routine investigation of normal physiological functioning under all conditions of modern flight and a means for testing the adequacy of supportive equipment. (Military Surgeon, Feb. 1954, CDR N. L. Barr (MC) USN, Naval Medical Research Institute, NNMC, Bethesda 14, Md.)

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Infectious Hepatitis

The clinical records of 331 patients with infectious hepatitis, who were admitted to the U. S. Naval Hospital, Portsmouth, Va., in 1952 and 1953, were reviewed.

The major findings were: (a) the great majority of patients were the younger, lower rated, enlisted men who had recently (within the 60 days prior to onset of symptoms) returned from duty in the Mediterranean Area or who had become ill while in that area. (b) The average number of days away from duty was 66.31 per man. (c) The incidence of cases increased during the autumn and winter months and decreased slowly during the spring and summer months. (d) The great majority of cases were divided into a pre-icteric and an icteric phase. The disease was usually not diagnosed during the pre-icteric phase, patients were treated symptomatically on a duty status and were not admitted until generalized jaundice or scleral icterus became apparent. (e) About 1.5% of patients gave a history of having been in contact with a known case of hepatitis, 37% stated that there had been other cases on their ship during the 60 days prior to the onset of their symptoms. (f) Eleven percent of the patients gave a history of having had subcutaneous or intradermal procedures within the 60-day period preceding onset of symptoms.

Assuming that some of the personnel of the Navy are going to be exposed to infectious hepatitis virus, there is a need for constant awareness on the part of all Medical Department personnel to prevent the spread of the virus among naval personnel.

Because this virus may be spread by food, milk, or water it is of the utmost importance that all food handlers be screened carefully and frequently for such early signs of hepatitis as nausea and vomiting, hepatic tenderness, splenomegaly, and anorexia, and that environmental and personal hygiene remain at a high level. The author believes that any person who has recovered from this disease should not be assigned duty as a food handler for at least 60 days after release from the hospital.

Inasmuch as increasing amounts of bilirubin appear in the urine during the latter part of the pre-icteric phase, it is believed that the screening test for bilirubinuria and urobilinogenuria offers great assistance in the early diagnosis of this disease.

Excreta of patients must be disposed of carefully. If the patient does not have head privileges, care must be taken to sterilize bed pans adequately after use. All patients should be thoroughly familiar with the principles of good personal hygiene. Needles and syringes used for any purpose whatsoever on infectious hepatitis patients must be either boiled or autoclaved for 15 minutes before reuse.

Medical officers should exert every possible effort to determine the probable source of each infection because only then can the foci of infection be effectively dealt with and the number of sick days due to this disease be reduced. (LT W. H. Cope (MC) USN, PMU #2, Norfolk, Va.)

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The Electrocardiogram in Hemorrhagic Fever

Hemorrhagic fever is a disease of probable infectious origin which has been known to western medicine only since it was encountered by the United Nations forces in Korea in 1951. More than 1,500 cases have been reported among United Nations personnel through 1952. The mortality rate in 1951 was approximately 7%, but since then it has been slightly less than 5%. Numerous articles pertaining to various aspects of the disease have appeared in the literature since that time and in some of these electrocardiographic abnormalities have been mentioned.

There are a number of factors in hemorrhagic fever evidenced by pathologic and physiologic findings which might be expected to produce electrocardiographic abnormalities. The pathology of the disease has been reviewed by Hullinghorst and Steer. Cardiac findings include an increase in weight, hemorrhage, and focal myocarditis. Eleven of forty-six hearts examined weighed more than 400 grams. The hemorrhage, which is usually grossly visible, is strikingly localized to the right atrium and

is one of the most distinctive pathologic features of the disease. Microscopically, it is observed to be diffusely spread through the subendocardium of this chamber and is associated with engorged and dilated capillaries. There is no reaction to the hemorrhage. The reason for the remarkable localization is not known, but its relative constancy was also noted by Kessler and in the 9 fatal cases at Osaka Army Hospital it was grossly visible in 7 and microscopically evident in all. Scattered areas of hemorrhage also occur in other parts of the heart, but they are much less marked and are discrete in type. The myocarditis is evidenced by an interstitial infiltration of mononuclear cells which is most prominent in the left atrium and adjacent portions of the ventricles, becoming less so toward the apex. It is much less marked and less frequent than the right auricular hemorrhage, being noted only once in the 9 autopsied hearts at Osaka Army Hospital.

Of the disturbed physiologic mechanisms in the disease, 2 of the most important are vascular instability and renal failure. Vascular instability is manifest by hypotension, most frequent from the fourth to the eighth day of illness. The blood pressure is labile and orthostatic phenomena are observed. The systolic blood pressure falls to shock levels in 10% of the cases and irreversible shock is a common cause of death. Of 61 deaths reported by Hullinghorst and Steer, 12 were due to shock. Renal failure is characterized by severe oliguria which usually lasts for from 3 to 6 days but occasionally longer. The development of uremia depends upon the duration and severity of urine suppression. This is in turn associated with electrolytic disturbances, of which hyperkalemia is the most important from a cardiac standpoint. Hypertension may develop with the uremia and rarely is there evidence of pericarditis. Death was due to uremia in 28 of the 61 reported cases. Probably as a consequence of a combination of these features as well as a presumed "capillary leakage," pulmonary edema may occur in the final stage. This is aggravated by any tendency to overhydration. Of the 61 reported cases, 14 died with pulmonary edema, and 6 of these were associated with uremia.

One hundred and forty-seven electrocardiograms from 55 cases of hemorrhagic fever taken during the acute stages of the disease and 90 electrocardiograms from 78 cases in the convalescent stage of the disease were reviewed and correlated with the significant clinical findings.

Abnormalities or suggestive abnormalities were noted in 1 or more tracings of 27 of the 55 cases in the acute series. Hyperkalemic effect was the most common change noted, because its presence was indicated or suggested in 17 cases. It was, in general, related in timing and frequency to the oliguria and resultant azotemia. Prolongation of the Q-T interval was noted in 11 cases during oliguria and in 4 during diuresis. Sinus bradycardia was noted in 4 cases and multiple auricular premature beats in 1. The rarity of disturbed impulse formation is surprising in view of the almost constant auricular pathologic changes at autopsy. Non-

specific negative T-wave abnormalities, usually mild and transitory, were noted in 9 cases. A possible explanation for the relative infrequency of this finding is the influence of concomitant hyperkalemic effect in neutralizing tendencies to T-wave negativity. One case each of left and right bundle branch block was noted. The former was probably due to advanced hyperkalemic effect, but a satisfactory explanation is not available for the latter. One case of RS-T segment elevation due to uremic pericarditis was observed. Electrocardiograms were abnormal in 6 of the 7 fatal cases. Five of the 6 cases with abnormal tracings showed some evidence of hyperkalemia. In 2 of these it was advanced. In 1 case there were multiple auricular premature beats. In 2 cases there were nonspecific negative T-wave changes, 1 of which was the only case in the series in which myocarditis was demonstrated at autopsy. Despite the presence of gross right auricular hemorrhage in all cases, significant P-wave abnormalities were not observed.

Seven of the 78 cases in the convalescent series showed variations from normal. In 4 of the 7, the changes were slight and of questionable significance. The other 3 include 1 case each of right bundle branch block, auricular fibrillation, and nonspecific but marked T-wave inversions. However, in the last case, serial study revealed a definite progression toward normal. Therefore, only 2 cases in the series provide evidence that permanent electrocardiographic abnormality results from hemorrhagic fever. Even in these it is impossible to be certain that the abnormality did not antedate the illness. In addition, long-term follow-up may reveal a return to normal. (Am. Heart J., Feb. 1954, 3207 Washington Blvd., St. Louis 3, Mo., 1st LT. A.G. Smyth, MC, USA, and Col. G.M. Powell, MC, USA)

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"Space Helmet" Induction of Pediatric Anesthesia

The induction of pediatric anesthesia in the past has left much to be desired. The patients were fearful and many carried frightening associations into adult life. In an effort to improve on the technique of the induction of pediatric anesthesia and to help abolish these fearful memories, a new approach was tried. With the popularity of space travel and its associated heroes, it was thought that here was an approach to the problem that would quickly establish rapport with the pediatric patient and through the opportunity of vicarious living, appeal to the child's imagination. Thus the idea of the use of a "Space Helmet" as a reservoir for a gaseous anesthetic agent was conceived.

The "Space Helmet" is constructed of transparent acrylic plastic. The transparency of the reservoir allows the child to maintain unimpeded visual contact with his surroundings, thus helping to tranquilize his emotions. The fact that the child is allowed to sit upright for the induction furthers the cooperation already established.

Rapid induction is a necessity for successful pediatric anesthesia, therefore cyclopropane was chosen as the gaseous agent. Additional advantages of cyclopropane are the absence of any unpleasant odor and its amnestic properties.

The induction of pediatric anesthesia by the "Space Helmet" technique is as follows. The child is offered a trip into space and told that to assure himself an adequate supply of oxygen while in space, the "Space Helmet" will be used. The flow of gases is started. The flow for the successful use of the "Space Helmet" has been varied from 1,500 to 3,000 cc. of a 50-50 mixture of cyclopropane and oxygen. This high flow of gases is necessary because of the openness of the technique. The "Space Helmet" is slipped over the patient's head and is supported comfortably on his shoulders. Rapport is maintained by conversation, suggestion, and questions slanted toward travel in space. The patient is induced to First Plane, Third Stage anesthesia in from 30 seconds to 2 minutes. With entrance into this plane of anesthesia with its loss of consciousness and beginning muscular relaxation, the patient is lowered from an upright to a supine position. The flow of gases is stopped and the "Space Helmet" quickly removed. The method of anesthesia is changed to Vinethene by open drop or sodium pentothal intravenously or any other method desired by the anesthesiologist for maintenance.

Because of the explosive properties of cyclopropane, all anti-explosive precautions must be observed to the maximum. Room ventilation must be adequate and all other anti-explosive safeguards observed. Where these safeguards are not observed, the use of the "Space Helmet" technique is discouraged.

Conductivity of the "Space Helmet" is provided by the application of an anti-static solution at least once per day per day of use. This maintains an unbroken chain of conductivity from the "Space Helmet" to conductive flooring via the conductive rubber inflow tube, anesthetic machine, and the "drag chain" on the anesthetic machine.

One hundred and fifty children, varying in age from 2 to 13 years, have been anesthetized by the "Space Helmet" technique with highly successful and satisfying results. There have been no complications such as laryngospasm, vomiting, or aspiration.

It is the authors' hope that by providing a rapid, safe, pleasant method of pediatric anesthetic induction it will be possible to abolish fear of anesthesia and increase the safety of the patient undergoing surgery. (CDR D. J. Giorgio (MC) USN, CDR J. V. Niiranen (DC) USN, and LT J. G. Morrow, Jr. (MC) USNR; U. S. Naval Hospital, NNMC, Bethesda 14, Md.)

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The printing of this publication has been authorized by the Director of the Bureau of the Budget, June 23, 1952.

Visual Acuity

About 2 years ago the B. F. Goodrich Company decided to determine the nature and extent of the visual problems existing among its employees in one of its plants. Every employee was offered the opportunity of having a visual test made on a confidential basis; 10,372 took the test.

Management's interest in the survey fell primarily in the following categories: (1) Relationship of accident proneness and visual acuity. (2) Prevention of accidents not only to the eye but also to the body as a whole. (3) Relationship of visual acuity to quality and quantity of work done. (4) A genuine desire to make the employee aware of any visual defects he might have, in the hope of helping him. (5) A desire to add to the basic knowledge of human vision by presenting an analysis of the vision of the employees of a large industry.

Two "Sight Screeners," portable visual testing units, were mounted on carts. The testing was done both on the job and in the medical department. All new employees were tested. All workers were tested on a voluntary, confidential basis. The results were evaluated by a physician.

The "Sight Screener" is a portable visual testing instrument designed for mass visual screening. It indicates types of visual deficiencies, but is not diagnostic. It will perform the following tests: (1) Simultaneous binocular vision, near and far point. (2) Visual acuity, right eye, near and far point. (3) Visual acuity, left eye, near and far point. (4) Visual acuity, both eyes simultaneously, near and far point. (5) Depth perception or stereopsis, near and far point. (6) Vertical muscular imbalance, near and far point. (7) Horizontal muscular imbalance, near and far point.

Visual screening tests, properly conducted by trained personnel, are valuable in determining the visual acuity of large numbers of people. They should be considered as a means of survey and not as a diagnostic eye test. Final determination of the actual visual quality of an individual should be made by an ophthalmologist.

The results of the survey showed that: Older individuals have a greater percentage of "unsatisfactory" vision than younger individuals. The older the person, the poorer the vision. Visual quality is probably not too great a factor in the causing of accidents. Men under 40 have more accidents of all types, major and minor, than men over 40 years of age. Because more "unsatisfactory" vision occurs in men over 40 years of age it suggests either that vision is not important in causing accidents or that people with "satisfactory" vision are more accident prone. This latter conclusion does not seem feasible. Females have more uncorrectible defects ("deficient" vision) than males. Uncorrectible defects increase with age. Depth perception deficiency is the most prevalent defect and the least is one-eye suppression. There is a greater incidence of color deficiency among females. One-eye suppression is more frequent among males. In the authors' group 90% of

all people over 50 years of age regardless of the type of work they are doing needed corrective glasses; and 53.6% of all people in the age groups between 21 and 65 required corrective lenses.

An employee visual survey is a worthwhile project for any industrial management to undertake. The results will probably be surprising to management in that they will learn that they have many employees with unsatisfactory vision. These partially blind employees are undoubtedly turning out poor quality merchandise, which has a bad effect on the company's reputation.

The survey proved that people for the most part are anxious to help themselves. It appears that a continuing opportunity should be made available to employees to have their vision checked. Perhaps it would even be better to offer them the opportunity of being examined by an ophthalmologist with more accurate testing equipment. A company should not institute a visual testing program for the sole purpose of reducing accident occurrence. A protective eye glass program would of course reduce eye injuries. Industry has the opportunity of doing a brilliant job of preventive medicine. Visual care is one of the ways of fulfilling this opportunity. (Industrial Medicine & Surgery, Feb. 1954, R. H. Wilson, M. D. and W. E. McCormick, M. S. ; B. F. Goodrich Company, Akron, Ohio)

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Executive Health Programs

During the last half century, America has grown from an agricultural country to the greatest industrial nation the world has ever known. It seems obvious that the physical as well as the mental health of those responsible for directing the industrial machinery may have a profound effect on its success or failure. Many big companies have come to realize that among their most valuable assets are their executives, and during the past 20 or 30 years the concept of executive health programs has developed.

Industrial health programs whose basic objectives are health promotion and hygiene and not finger bandaging have proved their worth in increased productivity, efficiency, and morale of workers generally. The basic principles apply not only to the daily paid workers but also to top levels of management, because the latter not only have most of the health problems of the workers but also the problems of a special nature which are inherent in the direct and indirect tensions of their daily lives.

The problems of aging begin to show up in the executive group, because the ages of executives range from about 40 to 60 years, with the majority being more than 50 years old. Recent life insurance figures show that the average life expectancy of 50-year-old industrial workers increased 5 years between 1911 and 1949 (from 17 to 22 years). The execu-

tives have probably experienced an equal increase, and there has doubtless been a concomitant rise in the prevalence of degenerative and neoplastic disease.

There are special stresses and strains which are exerted on the executive and which demand peculiar qualities of resistance for survival. The big business executive today works in a world which has expanded tremendously and is no longer bounded by the limits of the factory or the city but by the ends of the earth. One minute he may be discussing the trend in fuel oil prices with a marketing analyst; the next, talking to a production chief in Venezuela, or putting the finishing touches to a speech.

The most important feature of executive health programs, and perhaps the one of most value, is the system of careful periodic health inventories which are made to assess the physiological and emotional condition with special reference to the demands of the job. These inventories should be a part of any selection program for promotion. It may be possible in many cases to save a man from overpromotion, thereby protecting not only his health but also the interest of the company and the stockholders.

The findings revealed by health surveys of executives vary somewhat from group to group, but certain general facts are evident. Defects of function or structure are found in about 60% of executives, and an average of about 40% of them state that abnormal conditions were revealed of which they had previously been unaware. Many of these conditions may endanger future health and longevity and deserve some comment. One of the most common findings was that of overweight (20 to 30%). Life insurance figures show that among overweight persons who were accepted for insurance as substandard risks the subsequent mortality was 50% greater than among those of normal weight. This excess mortality was largely the result of chronic diseases of the heart, cerebral hemorrhage, chronic nephritis, diabetes, cirrhosis of the liver, and gallstones. Reducing lowers the mortality. In this connection, in the author's company the executive dining room in New York during the past several months has been listing on the luncheon menus the caloric values of the food items.

High blood pressure is common (7 to 15%). In many cases this represents true hypertension, and in others it is a temporary condition, possibly a labile blood pressure, one easily stimulated to rise to high levels. In any event, therapeutic measures, including counseling and guidance regarding physical and mental hygiene, can often alleviate or delay the organic changes which may result.

Heart disease is found (2 to 10%). This is not surprising, because it is well known that heart disease is the leading cause of death among men in the age groups of most executives. The types of heart disease found are usually either angina pectoris, coronary artery disease with occlusion, or hypertensive and arteriosclerotic heart disease. It is not known for certain whether heart disease is an occupational hazard of business executives.

It is known, however, that emotions such as anger, fear, anxiety, or pain may affect the heart profoundly, not only in its action but also the rate, the sounds, the electrocardiographic tracing, and the blood pressure. It is important to recognize true organic heart disease and to evaluate it for what it is worth. Many things can be done to slow the process and to prevent complications, and very often heart disease is not incompatible with a long, useful, and active life. In fact, as Alvarez states, one of the things an executive must look out for and avoid is the pessimistic physician with an electrocardiograph who may frighten many persons needlessly.

Abnormalities of the prostate are frequently encountered (4 to 5%). Prostatic hypertrophy may lead to obstruction, with all the serious sequelae. Solitary nodules should be regarded with suspicion as possibly cancer; either benign hypertrophy or prostatic cancer may be successfully treated if discovered early.

Cancer is the second cause of death among men of the executive age group, and the examiner's index of suspicion should be high. Particularly to be sought are early signs or symptoms of cancer of the lungs, the stomach, the large bowel, and the prostate. It is only with early detection and prompt and adequate treatment that cure may be achieved.

Diabetes is to be expected in perhaps 2% of executives and in many instances is discovered for the first time at the health inventory. The disease may be easily controlled by simple weight reduction and a sensible diet with or without insulin and disabling complications prevented.

All gradations of neuroses may be encountered from minor anxieties, insomnia, and "stomach trouble" to the more serious obsessional states.

There is no doubt that a careful, systematic plan of health promotion will return to the industry many times its cost. The early detection of disease or structural abnormalities may allow prompt cure or correction and prevent serious and possibly fatal disabilities. Better health means better morale, increased efficiency, and less time lost because of illness. (Arch. Indust. Med., Feb. 1954, G.M. Saunders, M.D., Socony-Vacuum Oil Co., Inc., New York, N.Y.)

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Acromegaly and Pregnancy

The occurrence of 2 normal pregnancies in an acromegalic female afforded an opportunity for a detailed study of this rather unusual relationship. A review of the world literature revealed 33 reported cases of pregnancy occurring in patients with acromegaly. Because of this uncommon association, a case is presented, together with a summary of the world literature and discussion concerning the physiology of the pituitary-gonadal system in acromegaly and in pregnancy.

The diagnosis of acromegaly was made on the basis of the physical examination and of roentgenologic studies revealing tufting of the terminal phalanges. The absence of roentgenographic changes in the sella turcica does not militate against a diagnosis of acromegaly. According to the work of Henderson, in the great majority of cases, the likelihood of normal gonadotropic function is much less if the eosinophilic adenoma is large enough to cause osseous changes in the sella turcica.

During the course of her gestation, the patient exhibited no clinical change in her acromegaly. The laboratory findings were all within the accepted normal range for pregnancy--the serum protein-bound iodine level being elevated; the tolerance to oral glucose being slightly impaired from the thirty-third week until the postpartum period, with glycosuria for several days after delivery; and the urinary excretion of formaldehydogenic and reducing steroids being increased above normal. The urinary excretion of pregnanediol and 17-ketosteroids also followed a pattern consistent with gestation.

The serum protein-bound iodine and blood iodine levels are usually normal, but may be increased during active acromegaly. It has been shown that the hypermetabolism of acromegaly, as indicated by the elevated basal metabolism rate, occurs in the presence of a low or normal uptake of radioactive iodine; this suggests the existence of an extrathyroidal metabolic stimulus in acromegaly. In addition, the urinary excretion of formaldehydogenic and reducing steroids has been shown to be either normal or increased in acromegaly, and it is known that approximately 33% of patients with active acromegaly exhibit an impairment of carbohydrate tolerance. These findings, therefore, are present in both acromegaly and pregnancy, and in this instance can be explained on the basis of pregnancy alone. There is no suggestion from the authors' studies that there is an additive effect in the presence of the two clinical conditions occurring in the same patient.

This case offers further evidence that the acromegalic female can conceive and carry to term. Pregnancy occurred twice and menstrual function subsequently returned to normal each time. (J. Clin. Endocrinol., Jan. 1954, W. B. Abelove, M. D., J. J. Rupp, M. D., and K. E. Paschkis, M. D.; Jefferson Medical College, Philadelphia, Pa.)

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Hallux Valgus

The disability associated with bunions is that of an arthritic deformity of the great toe. Not only must the sufferer endure chronic severe pain, he must also tolerate the embarrassment of his distorted toe and the resulting ill-shaped shoe.

The development of hallux valgus is gradual. The deformity often exists uneventfully to a varying degree until the pain becomes intolerable. It is seldom noticed before puberty but may develop rapidly in early adulthood. The metatarsal portion of the foot becomes widened and the phalanges of all toes begin to point moderately toward valgus. This is a period when parents have ceased to worry or have lost "authority" over their child's feet. The adolescent demands shoes of a popular style; short or tight, as the case may be, style supersedes common sense. Eventually the bunion of the first metatarsal head becomes painful. Shoes of all styles are tried for relief and final failure to eliminate the distress leads to a decision for surgical intervention. It is unfortunate that the deformity is not more often recognized and corrected in the formative stage, before permanent articular and ligamentous changes occur. Operation is much simpler under such circumstances.

The biomechanic aspect of hallux valgus is that of a gradual stretching of the abductor hallucis muscle and the corresponding contracture of the adductor hallucis. The author emphasizes the importance of release of the taut contracted adductor hallucis tendon. It has been observed also that in the presence of advanced hallux valgus deformity the spread between the first and second metatarsals cannot be closed satisfactorily without removal of the lateral sesamoid. The degree of varus of the first metatarsal is not of great importance. It is the unyielding resistance of the bone to the forces of outward deviation of the phalanges, not only of the first toe but of all the toes. In hallux valgus the adductor tendon and the mechanism of the outer four metatarsals and their phalanges actually pull the sesamoids laterally from under the head of the first metatarsal. Once the fibrotendinous mechanism of the adductor hallucis and the sesamoids becomes rigidly contracted they cannot be reduced.

More than 57 operations with some degree of originality have been devised for correcting hallux valgus and bunion deformity. Most surgeons adopt a technic of choice and use it routinely. The author believes that the type of operation should be selected according to measured indications. There are four principal stages of the deformity to be considered from the standpoint of treatment: (1) The early formative hallux valgus in children or young adults, with little or no intra-articular or bursal change. (2) Moderate hallux valgus deformity but associated with severe bursal changes and marked prominence of the bunion. (3) Severe hallux valgus deformity, with severe bunion and moderate intra-articular degeneration. (4) Immutable hallux valgus deformity, with painful bunion and severe degenerative destruction of intra-articular structure.

Recognition of the early signs of the deformity is stressed, and corrective measures are described. The author's method of adductor transplantation and removal of the lateral sesamoid bone is recommended for the average severe hallux valgus. A closed tenotomy of the adductor with removal of the metatarsal prominence and shortening of the bursal capsule gives satisfactory results for the moderate hallux valgus with a more or less severely painful bunion. (J. Internat. Coll. Surgeons, Jan. 1954, E. D. McBride, M. D.; Oklahoma City, Okla.)

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The Surgical Management of Adrenal Medullary Tumors

Inasmuch as pheochromocytomas are rare and one must rely on a summation of single case reports or small series for experience in the field, 4 proved cases of pheochromocytoma are reported. Three of the cases were associated with sustained hypertension and 1 with paroxysmal hypertension. In 1 case, an extra-adrenal as well as an adrenal tumor was encountered. These 4 cases are discussed with particular emphasis on the surgical aspects of the problem.

The classic clinical syndrome of paroxysmal hypertension first described by L'Abbe has yielded in importance to sustained hypertension as the most common manifestation of adrenal medullary tumors as described by Green. Certain features associated with sustained hypertension should arouse suspicion and instigate a search for an adrenal medullary tumor. These associated symptoms and signs have been presented by Smithwick and his associates. The most common manifestations are excessive sweating, vasomotor phenomena, hypermetabolism, normal cold pressor response, postural tachycardia and hypotension, and disturbed glucose metabolism. Any one or a combination of these clinical features in a patient with hypertension demands investigation for a specific hormonal etiology for the hypertension. It is unwise to submit all hypertensive patients to the provocative tests with Regitine and Piperoxan unless a reasonable suspicion exists that a hormonal cause may account for the hypertension.

Adrenal medullary tumors are usually small, round, encapsulated, unilateral, and reddish-brown in color and, as indicated by Graham, are apparently more common on the right than the left side. Abdominal palpation and massage of flank for provocative blood pressure testing have limited value in localizing the site of a tumor because the majority of tumors are small. Tumors have been found in extra-adrenal locations, most frequently in the abdomen in the lumbar paravertebral region, but they may be found anywhere from the organ of Zuckerkandl at the bifurcation of aorta cephalad into the chest as shown by Maier and Phillips.

The localization of a tumor when the clinical diagnosis of pheochromocytoma seems evident is difficult but extremely important to the surgeon accepting responsibility for the safe conduct of the patient through extirpation of the tumor. Intravenous and retrograde pyelograms may, in some instances, be rewarding. However, the abnormalities shown by x-ray examination may be such minor variations as displacement of the upper pole of a kidney or deformity of an upper calyx. Laminograms of the adrenal area may be extremely helpful as in one of the authors' cases by actually visualizing the tumor or by contributing negative evidence of normal adrenal glands on one or both sides. The authors did not employ perirenal air insufflation for contrast visualization because of the danger of fatal air embolus or a paroxysmal hypertension crisis inherent in this procedure. Presacral air introduction appears to be a less hazardous procedure for retroperitoneal contrast visualization.

The accurate localization of an adrenal medullary tumor is important for safe surgery because many of these patients cannot tolerate misdirected surgical exploration either transabdominally or through a posterolateral approach. Accurate localization is important to provide a surgical approach which is direct and which will give ample exposure and thus avoid undue manipulation of the tumor.

There are three phases of the problem relating to the surgical management of adrenal medullary tumors which must be fully appreciated after the clinical diagnosis and localization of the tumor have been made. These occur during induction of anesthesia, during manipulation of the tumor, and in the circulatory collapse following extirpation of the tumor. Successful management requires the utmost cooperation between anesthesiologist and surgeon.

The induction of anesthesia and positioning of the patient for operation may be attended by a serious rise of blood pressure especially in patients in whom paroxysmal hypertension is present. Such patients must receive premedication and should be managed with the same cautious regard as that currently used in the management of hyperthyroidism prior to iodine preparation.

The second phase of the operation which may evoke a hypertensive crisis is during the manipulation of the tumor. The fact that some tumors produce no perceptible change during the manipulation period renders it difficult to assess the merits of such adrenolytic agents as Regitine, Piperoxan, Dibenamine, and amyl nitrite recommended for blood pressure control. These tumors are extremely vascular and have multiple vascular communications which require individual identification and ligation to control the production of epinephrine and norepinephrine. In those instances in which the blood pressure is alarmingly high the surgeon should withhold further manipulation until a more stable situation exists unless all vascular connections have been ligated. Bleeding may be copious but blood transfusion should

be used during the operation only to replace actual blood loss. After the tumor is removed, blood may be administered rapidly to combat the profound hypotension which may occur.

In the third phase of the operative management when the tumor is removed, profound hypotension must be anticipated. Hypotension may be a compensatory response to the massive infusion of pressor hormones released during manipulation of tumor or may be caused by the withdrawal of the pressor hormones which have for several years sustained a hypertensive state without any support from the sympathicoadrenal system, the mechanism for normal blood pressure regulation. The anesthesiologist must be prepared for rapid infusion of blood, plasma, or dextran, and the use of massive doses of pressor drugs if the situation demands. A shift from one vasopressor drug to another may be necessary if profound hypotension persists. The use of adrenal cortical hormones during this phase seems unwise because of the relatively slow action of cortical hormones. Use of adrenal cortical hormones preoperatively in anticipation of a profound postoperative hypotension is contraindicated because of the salt and water retention which would render more hazardous the hypertensive state seen during manipulation of the tumor. One must be guided by the clinical response in employing vasoconstrictor drugs and blood-volume supporting measures because profound hypotension does not develop in every case. (Surg., Gynec. & Obst., Feb. 1954, J. E. Conley, M. D., E. Daniels, M. D., E. L. Belknap, M. D., and E. End, M. D.; Marquette University School of Medicine, Milwaukee, Wisc.)

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Thrombosis of the Abdominal Aorta and Iliac Arteries

While gradual occlusion of the abdominal aorta and the iliac arteries has occasionally been recognized and reported during the past century, it is only during the last 25 years that accurate diagnosis, by means of aortography, has become established and surgical treatment attempted.

In the cases reported, this condition occurs much more commonly in males than in females. It is usually associated with extensive arteriosclerosis, often in association with hypertension and often with roentgenographic evidence of calcification of the abdominal aorta or iliac arteries. Although intermittent claudication may occur in the calves, the pain is usually more extensive and also involves the thighs, hips, and lower back. Many male patients are unable to maintain a sustained erection due to interference in the flow of blood in the pelvic arteries.

In spite of the absence of palpable pulsations in the lower abdominal aorta, femoral, posterior tibial, and dorsalis pedis arteries, there may be much less pallor or cyanosis in the skin of the lower extremities than one would expect to find if the arterial occlusion involved the more periph-

eral vessels. There is a diffuse atrophy of the legs and thighs, giving the legs the appearance of being disproportionately thin in comparison to the general bodily stature of the individual. Associated with this atrophy there may be a generalized feeling of fatigue or weakness in the legs and thighs. The symptoms may be of many years' duration but usually are progressive.

During the past 3 years, the authors have encountered 14 patients in whom thrombosis of the abdominal aorta or the iliac arteries, or both, was suspected from the clinical findings and established by aortography. In 12 of the 14 patients the diagnosis was further confirmed by operation and direct exploration of the involved arteries.

The following methods of treatment were employed: (1) Bilateral lumbar sympathectomy, 8 cases; (2) lumbar sympathectomy plus resection of the thrombosed arteries, 2 cases; in 1 of these an arterial graft was attempted; (3) thromboendarterectomy, 1 case; (4) thromboendarterectomy plus lumbar sympathectomy, 1 case. One patient refused treatment and 1 patient had an amputation without other treatment.

In view of the varying methods of treating these cases and in view of the experience gained in their management and the varying results obtained, it seemed worth while to review them in some detail to see if a more definite formulation of their proper management could be made.

From a review of this group of cases it appears that in most instances the development of thrombosis of the abdominal aorta and iliac arteries occurs as the result of arteriosclerotic change in these vessels. In some instances, the thrombosis appears to begin first in the iliac arteries and then extends upward to involve the aorta, but in other instances it seems to begin directly in the aorta itself, and later extends down into the iliac arteries and femoral vessels. As the thrombotic process extends downward, the condition of the legs becomes increasingly precarious and no form of surgical therapy seems to be of benefit. Once the collateral circulation becomes occluded gangrene soon develops. The inferior mesenteric artery was occluded in many of these cases. There were no symptoms which could be attributed to obliteration of this vessel. If the thrombosis extends upward in the abdominal aorta, death ensues as the result of occlusion of both renal arteries or the superior mesenteric artery.

There were no untoward results from the visualization of the aorta by aortography. Complications from this procedure may be expected only if the point of the needle enters one of the renal arteries or the superior mesenteric artery. In only 2 instances did sympathectomy sufficiently improve the arterial circulation to relieve symptoms. Often this was not the case. In fact, the thrombotic process and progressive symptoms were seen to develop in a patient who had previously had a total sympathectomy from the stellate to the third lumbar ganglion. The most satisfactory treatment was to remove the thrombus whenever possible. Only in the cases in which this was done did pulses again become palpable in the lower extremity. Wylie has pointed out, however, that thromboendarterectomy is only possible

in the large vessels, the aorta, and the iliac arteries. When attempted in smaller vessels, the caliber of the artery is compromised and secondary thrombosis occurs. When segmental occlusion of the smaller vessels is found, resection and grafting with a vein or arterial graft is probably to be preferred. Occasionally resection of the thrombosed aorta and iliac arteries and grafting as reported by Oudot and Beaconsfield may be possible, and a suitable arterial graft should be on hand at the time of exploration. (Ann. Surg., Feb. 1954, B.R. Heinzen, M.D., H.S. Dunbar, M.D., and H. Parsons, M.D.; New York Hospital, New York, N.Y.)

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Bladder Neck Resection in Children

Contracture of the vesical neck is one of the most common congenital anomalies of the genitourinary tract. The highest incidence is in children under 6 years of age, but, because many cases are either not detected or the childhood symptoms not recognized until the second or third decade, the true incidence is uncertain.

The symptoms are often identical with those of prostatism and other forms of lower urinary tract obstruction found in the adult. Frequently they are undetected or ignored by the physician until back pressure has caused advanced and sometimes irreversible dilatation of the upper urinary tract. Enuresis resistant to psychiatric management or repeated episodes of urinary tract infection refractory to symptomatic treatment may, on proper investigation, prove to be due to an obstructive uropathy responsive only to surgical correction. Occasionally, a patient is referred to the urologist for such late manifestations of the disease as an abdominal mass or the uremic state.

Treatment has been almost exclusively surgical, as dilatation of the bladder neck by sounds or bougies has not proved to be of lasting value. The nonoperative treatment is also impracticable because it requires general anesthesia in male children.

Originally the cold punch was used in transurethral resection, but at present the infant resectoscope is the most widely used instrument for these cases. Transurethral resection in children has certain limitations. All the pitfalls of transurethral resection in the adult are magnified many times in children because the infant resectoscope affords poor visability and makes the securing of adequate hemostasis difficult. The dangers of urinary extravasation and rectal perforation are real, as the tissue between the rectal mucosa and bladder neck is, as Campbell points out, "thin as cigarette paper." It is extremely difficult to determine accurately the proper amount of tissue to resect in order to secure an adequate vesical outlet. In infants an external urethrotomy may be required to accommodate even the small re-

sectoscope. Urinary incontinence, while rare in the hands of an experienced resectionist, is a tragedy when it occurs. Severe, often intractable, urethral strictures may occur later on in life. This complication has been observed by one of the authors in adults who have had urethral instrumentation in childhood.

The suprapubic approach has the disadvantage of inadequate exposure of the bladder neck area, with the result that less tissue can be resected.

In this country the rapid growth in popularity of Millen's retropubic prostatectomy has encouraged others to employ this approach in bladder neck resections. Burns and Lich and Maurer and Hand have modified the original Millen technique by employing a longitudinal incision in the prostatic capsule, which can be extended distally as far as the verumontanum, enabling the entire prostatic urethra to be visualized. Congenital urethral valves can be resected readily by this approach, and by carrying the incision upward the bladder can be opened widely to correct any pathologic changes within. If prolonged obstruction has resulted in upper tract pathologic changes, a cystotomy can be performed by a stab incision through the anterior bladder wall.

To date the authors have found a total of 26 reported cases (Burns, 20 cases; Lich and Maurer, 5 cases; and Hand, 1 case). There are probably many more in the literature on retropubic prostatectomy as well as many that have not been reported. Although the 26 cases were not described in detail, no fatalities, serious complications, or operative failures were noted. To this small series the authors add 6 cases of their own.

Congenital contractures of the bladder neck in 6 children were successfully resected retropubically, utilizing a longitudinal incision in the prostatic capsule. This technique offers the advantages of easy access to the prostatic urethra, bladder neck, and interior of the bladder, adequate hemostasis, low morbidity, and, consequently, a short hospitalization. (Arch. Surg., Jan. 1954, M.C. Wilson, M.D., G.R. Horton, M.D., B. F. Horton, M.D., and J.W. Byrne, M.D.; Kings County Hospital, Brooklyn, N.Y.)

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Rhabdomyosarcoma of the Tongue

Primary rhabdomyosarcoma of the tongue is a rare condition to which no reference is available for a complete pathological description or a sound therapeutic approach. The physician confronted with a malignant tumor of the tongue that is grossly and histologically unlike carcinoma must refer to a confused and sparse literature to cope with the question of exact diagnosis, treatment, and prognosis. The authors attempted to solve this problem by applying concepts based on their experience and what they could learn from

the literature about oral carcinomas, lingual sarcomas generally, and rhabdomyosarcoma of the extremities. This article is a compilation of the material that the authors considered most worth while and applicable to rhabdomyosarcoma of the tongue.

Coughlin's review of 53 patients with lingual sarcoma in which the age was known described 3 patients who had the tumor at birth. The ages of the others varied from 7 weeks to 71 years, with a peak of 27.4% in the fourth decade. Four patients were 4 years of age or under. Stout, reviewing 116 cases of rhabdomyosarcoma found throughout the body, observed that the ages ranged from birth to 84 years, with an average of 42-1/10 years and a preponderance of cases in the fifth and sixth decades.

The insidious onset of a painless mass is the usual, expected picture in this disease. Stout, in his review, found that 88.5% had swelling as their only symptom. In his cases pain or trauma was unusual. The tumor may interfere with speech, if it lies in the anterior two thirds of the tongue, or with deglutition if located in the posterior third. Coughlin reported lingual sarcoma slightly more common on the right side of the tongue and toward the base. The masses of his series varied in size from that of a pea to one weighing 400 gm., the mass was usually intraglossal and bulging toward the dorsum. It was described as rounded, firm or soft, depending on the amount of collagen present, elastic, and white or pink, on cut section. Coughlin, in contrast to most authors, noted ulceration to be fairly common, occurring in 11 out of 29 cases (in his series of 60) in which the presence or absence of ulceration was noted. Ulceration was more prevalent where the tumor mass pressed against the teeth. Barrett and Miller mentioned hypersalivation, fetor oris, and, rarely, hemorrhage as being present in the late stages.

Metastases to lymph nodes were found in 15 out of 37 cases, or 40%, according to Coughlin, who thought that blood-vessel dissemination was more frequent than lymphatic spread. Willis stated that rhabdomyosarcoma (all sites) yielded lymph-node metastases in a high proportion of cases and that these might be extensive. Of the 66 cases of rhabdomyosarcoma of various parts of the body that recurred, 38, or 61%, were metastases, according to Stout. Metastases appeared in the lungs in 23, in the lymph nodes in 10, in the skin and subcutaneous tissues in 8, in the pleura in 7, in the bones in 5, in the liver in 3, in the kidney, adrenal glands, and mediastinum in 2 each, and in the pancreas, ovary, and brain in 1 each. There were generalized metastases in only 5 cases.

The treatment of sarcoma of the tongue and lingual rhabdomyosarcoma is early radical excision. Of the two the results with sarcoma have been better. The prognosis of lingual rhabdomyosarcoma is unfavorable, and the course, according to Ewing, is usually rapidly progressive.

There are a few important points that should be made in the surgical consideration of rhabdomyosarcoma and sarcoma of the tongue. Although

these are rare they may confront the general surgeon as a problem in lingual tumor. Muscle tumors of the tongue remaining quiescent as an intraglossal lump may give the patient and the physician a false sense of security. Because these tumors in the tongue have tremendous potentialities for sudden growth and metastasis, they should be carefully biopsied. Once a diagnosis of rhabdomyosarcoma has been made the plan of treatment should follow the radical neck and lingual dissection outlined and the reports in the literature concerning the nature of rhabdomyosarcoma in general.

An excellent discussion of radiation is found in an article by Pack and Eberhart. Apparently, these tumors are radioresistant. However, only one concerted effort with high-voltage radiation has been tried. Preoperative radiation is not recommended; postoperative radiation after a radical resection might be worth while. It seems logical to direct this radiation to the parapharyngeal and retropharyngeal areas with the center of the target about the level of the constrictor pharyngis medius.

The authors found that tracheotomy is important in the postoperative management of the patients. When the tracheotomy is done a week or so before operation it offers the anesthetist the possibility of giving the anesthetic through this opening. Preoperatively, these patients should be surveyed from the medical point of view. The authors paid special attention to dental and oral hygiene. If the lesion in the tongue is close to the mandible, the periosteum is probably invaded by the sarcoma, because it has been shown in carcinoma of the floor of the mouth that the lymphatics drain through the periosteum in 50% of the cases. Therefore, cauterization of the periosteum or total or partial resection of the mandible is indicated. In partial resection of the mandible for carcinoma the authors used a stainless-steel prosthesis temporarily. After complete wound healing, this can be replaced by bone. (New England J. Med., Jan. 21, 1954, A. W. Ulin, M. D., W. C. Shoemaker, M. D., and G. F. Froio, M. D.; Hahnemann Medical College and Hospital, Philadelphia, Pa.)

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Localized Pulmonary Hypertrophic Emphysema

Localized pulmonary hypertrophic emphysema, unassociated with an aspirated foreign body or tenacious mucus from an acute respiratory infection, is an unusual condition which was barely mentioned in the medical literature prior to 1949. This disease usually occurs in infants and young children, although 2 cases discovered in the fourth decade of life have been reported. The exact etiology of the disease has not been established with certainty, but it appears reasonable to assume that it is congenital in origin. The diagnosis can usually be made radiologically if the existence of this entity is kept in mind.

This condition should not be confused with regional obstructive emphysema in infants and children caused by thick viscid mucus as a result of acute respiratory infections.

Caffey, in 1940, reported 7 cases of this type of emphysema associated with acute respiratory infections in which cystic dilatations could be seen in roentgenograms, and which returned to normal with nonoperative treatment.

Obstructive emphysema of a lobe or a lung is commonly caused by an aspirated foreign body.

In the particular type of emphysema under discussion, most of the previous authors believe, as the present author does, that it is congenital in origin. Folds of mucosa producing valvelike mechanisms in the bronchus, compression of a thin-walled bronchus by an adjacent pulmonary vessel, and localized bronchial chondromalacia have all been described as the underlying cause. No definite conclusions as to the etiology can be drawn from this case.

Multiple resection from the periphery inward in a 10-year-old boy having pulmonary hypertrophic emphysema localized to segments or portions of segments of the posterior segment of the right upper lobe, superior segment of the right lower lobe, and lateral basal segment of the right lower lobe is reported. This is apparently the tenth recorded case of localized pulmonary hypertrophic emphysema occurring in infancy or childhood: 2 other examples were reported in adults. Surgical excision appears indicated in this condition. (J. Thoracic Surg., Feb. 1954, 3207 Washington Blvd., St. Louis 3, Mo., W. Henry, M. D.)

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Assistant Secretary of Defense (Health and Medical)

Dr. Frank Brown Berry took the oath of office as Assistant Secretary of Defense (Health and Medical) on January 28, 1954.

Dr. Berry was born in Dorchester, Mass., May 13, 1892. He attended the Roxbury Latin School, and graduated from Harvard University with a Bachelor of Arts degree in 1914. He also received his Doctor of Medicine degree from Harvard University in 1917. He interned at Peter Bent Brigham Hospital and Boston City Hospital, both in Boston, Mass., and later became Resident-in-Pathology at the Boston City Hospital.

During World War I, Dr. Berry served from February 1918 to June 1919 in the Army Medical Corps. Upon being discharged from the service, Dr. Berry continued his internship at the Presbyterian Hospital, New York, and later became resident at the Bellevue Hospital, New York. Dr. Berry has served as Professor of Clinical Surgery at Columbia University, as Visiting Surgeon at Bellevue Hospital, and as Consulting Surgeon at other hospitals in the Metropolitan New York area.

Dr. Berry served as a Colonel in the Army during World War II from May 1942 to July 1946.

From July 1946 to the time of his current appointment, Dr. Berry, in addition to engaging in private practice, served as a consultant to the Surgeon General of the Army.

Dr. Berry is a member of the American Medical Association and the American Surgical Association, is a fellow of the American College of Surgeons, and is a diplomate and founder-member of the American Board of Surgery and the Board of Thoracic Surgery. (PIO, DOD)

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Reserve Retirement Points Granted for Aero-Medical Association Meeting

Reserve retirement point credits may be earned by Medical Service Reserve Officers on inactive duty for attendance at the 25th Annual Aero-Medical Association meeting.

This authorization covers eligible physicians, dentists, veterinarians, nurses, women's medical specialists, and Medical Service Corps officers of the U. S. Navy and Air Force.

Point credits will be awarded to eligible Reserve officers on the basis of 1 point for each day of attendance, provided sessions attended total at least 2 hours. Each day of the meeting will be considered a session. Reserve officers will be required to register for each day's session with their respective services, and properly authenticated reports of attendance will be forwarded to the cognizant Reserve recording unit to assure creditation. (PIO, DOD)

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From the Note Book

1. Commander Frederick B. Lukins (DC) USN, has been awarded the Legion of Merit with Combat "V" for "exceptionally meritorious conduct in the performance of outstanding services to the Government of the United States as Officer-in-Charge of the Division Dental Clinic, while serving with a Marine Division, in connection with operations against enemy aggressor forces and after the signing of the truce agreement in Korea from 22 Nov 1952 to 31 July 1953". CDR Lukins is currently attached to the Marine Corps Depot of Supplies, San Francisco, Calif. (TIO, BuMed)

2. Lieutenant George S. Lybarger (DC) USNR, was presented a letter of commendation with ribbon and combat "V" in a ceremony held at the Charleston Naval Shipyard, Naval Base, Charleston, S. C., 27 Jan 1954.

The Commander of the Naval Shipyard read the citation and presented LT Lybarger with the commendation ribbon. The award was made by the Commanding General, First Marine Division, for outstanding ability and professional skill while serving as Regimental Dental Officer in Korea from 23 Dec 1952 to 29 Aug 1953. LT Lybarger is now serving in the Dental Department of the Charleston Naval Shipyard. (TIO, BuMed)

3. The residency training program in oral pathology conducted at the Naval Dental School, NNMC, Bethesda, Md., has been approved by the Council on Dental Education, American Dental Association. (TIO, BuMed)

4. A special postgraduate course of Pathology of the Oral Regions will be held at the Armed Forces Institute of Pathology during the period 8-12 Mar 1954. Approximately 50 students will attend the course which is designed for the general dentist as well as the general pathologist, with equal representation from the Armed Forces and the civilian professions. (AFIP)

5. New support of the expanding search for chemical agents effective in the treatment of cancer is being given through grants-in-aid to scientists in universities and medical centers for research projects. The grants are administered by the National Cancer Institute. Eight grants, totaling $704,563., for studies in chemotherapy of leukemia and allied forms of cancer have been granted. (P. H. S., Dept. H. E. W.)

6. The preparation and testimony in a medico-legal case from the point of view of the physician is a matter that should not be undertaken lightly. When he is invited to testify, he must be certain that his particular experience warrants participation in the particular case. Having decided on this, his approach should carry that objectivity that is necessary to render his opinion of sound medical value to his legal associate in the trial of the case. (J. A. M. A., Feb. 6, 1954, T. J. Curphey, M. D., Hempstead, N. Y.)

7. In relating ionizing radiation experiments to man the dosage data cannot be carried directly over from animals. The developing fetus, especially its brain, is radiosensitive which fact contraindicates indiscriminate irradiation of the pelvis of the pregnant woman at any time during pregnancy. It is notable that animals that were irradiated in the latter part of pregnancy and even after birth grew to adulthood with abnormalities, that escaped superficial notice, but on closer examination had serious malformations and impaired function of the brain. Biologically the anencephalic (which cannot long survive) is a more serious digression from normal than the organism with a moderately inferior brain, from a social viewpoint it is probable that the production of an individual with a subnormal brain may be a worse catastrophe than one with almost no brain. (Proceedings of the Association for Research in Nervous and Mental Disease, S. P. Hicks, M. D.; Harvard Medical School, Boston, Mass.)

8. Radical operations for carcinoma of the esophagus and cardiac end of the stomach are discussed in the January 1954 issue of the Journal of the International College of Surgeons by K. Nakayama, M. D. of Chiba University, Chiba, Japan.

9. A technic providing precise delineation of functioning renal parenchyma and the preliminary results of the method in differential diagnosis of renal cysts and neoplasms is discussed in the February 1954 issue of the American Journal of Roentgenology, Radium Therapy and Nuclear Medicine, by J. A. Evans, M. D., W. Dubilier, Jr., M. D., and J. C. Monteith, M. D.

10. A 240-item bibliography of audio-visual aids in the field of human relations has just been completed. It is a valuable guide for personnel managers, industrial psychologists, and other industrial leaders and includes motion pictures, film strips, and recordings from many sources. (O. T. S., Dept. of Commerce)

11. The clinical effectiveness of a silicone-bentonite cream as a cutaneous protectant is described in Industrial Hygiene and Occupational Medicine, Feb. 1954.

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BUMED INSTRUCTION 4220.2 SUP 1 26 Jan 1954

From: Chief, Bureau of Medicine and Surgery
To: Ships and Stations Having Medical/Dental Personnel Regularly Assigned

Subj: Medical Stores Invoice, NavMed 255; discontinuance of

This instruction advises all activities requisitioning and receiving medical and dental material that subject form is being discontinued and the NavSandA Form 127, Receipt/Expenditure Invoice, is being substituted therefor.

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BUSHIPS INSTRUCTION 9230.3 3 Feb 1954

From: Chief, Bureau of Ships
Chief, Bureau of Medicine and Surgery
Chief, Bureau of Supplies and Accounts

To: Standard Navy Distribution List L1, L19, M29

Subj: Medical compressed gas cylinder valves; pin index safety system, initiation of

Ref: (a) ASA Standard 57.1 (CGA Pamphlet V-2)

This instruction provides authority and direction for the promulgation of the subject system. Completion of this program will provide changes to medical valves and equipment so as to eliminate the possibility of human error in connecting gas cylinders to medical apparatus.

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PREVENTIVE MEDICINE SECTION

Industrial Medicine

Suggestions for Proper Operation of Degreasers

Medical officers should be cognizant of a common and hazardous industrial operation which is in widespread usage ashore and afloat: the removal of grease from metal with solvents. This operation can be safely and efficiently done in solvent degreasing machines. A degreaser is essentially a tank with a heated chamber in which to boil the solvent, a space above the boiling solvent for hot vapors, a condenser above this for cooling and condensing the vapor to liquid, and an extension of the sides above the condenser to minimize air currents inside the tank. The preferred solvent is trichlorethylene.

Too frequently the hand-operated solvent type of degreaser is misused, resulting in unnecessary exposure of the operator to solvent vapors and increased operation costs.

Recent industrial health reports from several naval stations point up difficulties with vapor-phase degreasing machines and complaints of atmospheric pollution with the solvent. Investigations reveal that in the majority

of instances the fault was due not to mechanical failure but to improper operation. These complaints have been so frequent that it is pertinent to point out several common causes of solvent loss with its attendant atmospheric pollution. The following simple operating precautions should be observed:

1. Keep drafts across an open top degreaser to a minimum and keep the degreaser covered when not in use.

2. In starting a degreaser, always turn on the water before the heat is applied. When shutting down, turn off the water last. In this way, all vapors formed will be condensed and will not pollute the workroom air.

3. Never overload a degreaser. Overloading may displace vapors mechanically. It will cause the vapor level to drop and suck into the machine air which will mix with the solvent vapor. As the vapor level returns to normal, these mixed vapors will be forced out into the workroom air.

4. Control the boiling point of the solvent with a thermostat. This will prevent overheating and rapid boiling of the solvent which might result in the production of more vapor than it would be possible for the unit to condense.

5. Control the temperature of the effluent water. This temperature should never be below that of the room. If below, water may be condensed from the room air causing a mixture of water and solvent vapor to form and float above the tube vapor level. The latter condition is made apparent by a fog or white mist floating in the bath. Water will cause undue solvent loss. It may also result in corrosion from hydrolysis of the solvent.

6. Place work into, and remove work from, the degreaser as slowly as possible. The speed should not exceed 10 to 20 feet per minute.

7. Avoid carry-out by permitting work to remain in the machine until it appears dry. Solvent may also be carried out by tubes, cups, or parts with intricate shapes and recesses. This kind of work should be racked at an angle or should be tilted or rotated in the vapor zone until all liquid has been drained out.

8. Never clean over-alls or other garments in the machine. The cleaning of garments results in unnecessary solvent loss and contamination of the workroom air.

Communicable Disease Control

Outbreak of Scrub Typhus

The Third Marine Division, FMF, Pacific, reported an outbreak of scrub typhus, mite-borne (tsutsugamushi fever). Fifty-seven patients were admitted to the sick list.

Two regiments were on the lower southwest slope of Mt. Fuji from 11 to 15 October 1953. The first group of cases of afebrile illness with an exanthematous eruption began appearing on 22 October, when the first patient was admitted to the medical company dispensary of Middle Camp Fuji. During the following 2 days, 6 more patients were admitted. It was apparent that an epidemic was underway and the Preventive Medicine Unit, Third Marine Division, investigated.

Table 1. --Dispensary admissions for scrub typhus by regiment

Third Marine Division	15-21 Oct.	22-28 Oct.	29 Oct. to 4 Nov.	5-11 Nov.	12-18 Nov.	Total
Regiment A	4	22		2		28
Regiment B	5	9	3	7	4	28
Other Third Marine Division Units		1				1
TOTAL	9	32	3	9	4	57

The investigation revealed that a battalion of regiment A and a battalion of regiment B had been on maneuvers from 11 to 15 Oct 1953. Another battalion of regiment B had been working on field problems from 1 to 10 Nov 1953.

Mice were inoculated with patient blood for Rickettsia isolation and Proteus agglutination.

Two sets of field uniforms for each of approximately 10,000 men were immersed in a dibutylphthalate solution (stock number 51R-304) provided by the Army. The top 4 inches of socks were dipped also, and the sleeping bag covers were sprayed with the solution. This impregnation of the clothing with the miticide was considered effective for 4 laundry washings.

The hyperendemic area in which rodents and mice seemed to abound was placed out-of-bounds to troops in the maneuver area. All troops coming into the field were directed to wear socks and utility uniforms that had been impregnated with miticide solution, and were instructed to tuck the bottoms of their trouser legs over the socks into their boots.

The seasonal onset of cold weather was considered to be a large factor in the cessation of the epidemic.

Terramycin promptly alleviated symptoms and fever within 24 hours. On the average, the acute stage of illness lasted 4 or 5 days. Although 13 patients developed severe symptoms with fever of 103° F. or over, no complications or deaths occurred.

According to the annual historical report, 406th Medical General Laboratory, Tokyo, Japan, 1948, the first case of scrub typhus in the Fuji

area was reported in 1934, but outbreaks were unknown there until 1948. During October and November of 1948, 23 patients were treated for scrub typhus from among 1,769 Army troops, and it was estimated that an equal number of inapparent infections occurred. The disease arose from exposure to vectors in the military maneuvers area at the foot of Mt. Fuji, and incidence was highest in organizations that had had unusually heavy exposures to ground and brush.

The annual report of medical department activities, Medical Section, Far East Command, 1948, stated that steps had been initiated to afford adequate protection for troops entering the area in the future. It was planned to utilize the situation as an opportunity for rather intense training of troops in pertinent preventive measures against this and other insect-borne diseases.

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Leptospirosis

Military Significance: It is apparent from various published sources of confirmed scientific data concerning leptospirosis, that many serotypes of Leptospira pathogenic to man and animal are now worldwide in their distribution. In many areas these agents have been present for a long time. They cause diseases usually contracted by individuals who are in contact with rodents, particularly rats whose excreta contaminate food and water. Also, it now is realized that febrile illnesses with or without jaundice can be due to the various serotypes of Leptospira and that they are not uncommon in troops.

Increased capabilities for the prevention and diagnosis of leptospirosis are of considerable significance to military operations because combat and other operations are usually carried out in areas where exposure to Leptospira is likely to be found. Rice paddies, trenches, swamps, river crossings, caves, and improvised water supplies for bathing and consumption all give great opportunities for exposure to the disease. In addition, destruction during wartime of human dwellings with their modern sanitary facilities may expose large segments of the military and civil populations to the various serotypes of Leptospira.

Diagnosis: Human leptospiral infections comprise a multiplicity of separate diseases whose clinical features vary considerably. The manifestations range from a mild illness resembling "grippe" to a severe pathological pattern similar to that observed in fulminant infectious hepatitis. In diagnosis, leptospirosis is often confused with either infectious or serum hepatitis. In each of these conditions there are patients in whom jaundice never develops. Furthermore, during the pre-icteric stage of infectious hepatitis, fever and general malaise may mimic the mild form of leptospirosis. Deep palpation of the liver will frequently elicit tenderness in the

patient with hepatitis. This sign, moreover, is encountered in leptospirosis. Nausea and vomiting occur with equal frequency. The leukocyte count may be helpful at this stage because a relative leukopenia occurs in patients with viral hepatitis in contrast to a mild leukocytosis in leptospirosis. Evidence of hepatic dysfunction may be suggested by certain of the flocculation tests in infectious hepatitis; whereas, as a general rule, the common tests are not usually altered during this stage of leptospirosis.

The eventual course of the disease, the epidemiological considerations, the results of hepatic and renal tests, the isolation of specific Leptospira, and the development of specific antibodies to Leptospira makes the distinction apparent between the two diseases. The difficulties encountered in handling the viral agent of infectious hepatitis and the lack of a useful specific serological diagnostic test emphasize the need for definitely ruling out leptospirosis which is readily detected by laboratory means.

The classical case of Weil's disease with fever, intense headache, and myalgia, hyperemia of the conjunctivae, and pyrexia terminating on about the seventh day, simultaneously with the appearance of jaundice and the eventual development of albuminuria, oliguria, and azotemia should cause little confusion with infectious hepatitis. Unfortunately, not all of the classical features are uniformly encountered in the mild case of leptospirosis. Moreover, the fulminant patient with infectious hepatitis may become anuric, azotemic, and icteric with hemorrhagic tendency and delirium. Usually, conjunctival injection and myalgic signs are lacking and the patient is febrile at this stage of illness in contrast to the leptospiral patient who is generally afebrile during his critical period. Hepatomegaly and ascites occur in either disease although each of these features is more common in viral hepatitis. Ultimate proof of diagnosis in certain instances must rest upon isolation of specific Leptospira or upon the results of the serologic reaction. (Medical Science Publication No. 1: Symposium on the Leptospiroses, 11-12 Dec. 1952, Army Medical Service Graduate School, Walter Reed Army Medical Center, Washington, D.C.)

Venereal Disease Control

Management of Venereal Diseases

The management of syphilis and gonorrhea was discussed in the Preventive Medicine Section of the 5 February 1954 issue of the Medical News Letter.

In this issue, chancroid, granuloma inguinale, and lymphogranuloma venereum are considered. Much of this material has been extracted from "Management of Venereal Disease," a recent publication of the U.S. Public Health Service.

The various entities which are included under the diagnostic title "nongonococcal urethritis" and their management will be discussed in the Preventive Medicine Section of the 2 April 1954 issue of the News Letter.

CHANCROID

Diagnostic aids:

Smears and culture

Darkfield and STS (sufficient series to rule out syphilis)

Treatment:

Terramycin--0.5 gm. orally 4 times per day for 7 to 14 days or

Aureomycin--0.5 gm. orally 4 times per day for 7 to 14 days or

Chloramphenicol--0.5 gm. 4 times per day intramuscularly for 13 days or

Streptomycin or dihydrostreptomycin--0.5 to 1.0 gm. intramuscularly 4 times per day for 5 to 7 days or

Sulfadiazine--1.0 gm. 4 times a day for 7 days.

Follow-up:

If lesion does not heal, the diagnosis of syphilis, granuloma inguinale, or malignancy should be reconsidered and investigated carefully. In some cases, a longer course of the drug or a change of drug may prove necessary

Serologic Test for Syphilis (STS):

Monthly for 4 months

Local treatment of chancroid should consist of cleanliness. Inguinal buboes should not be incised but may be aspirated through normal skin with a #15 or #16 needle, if fluctuant.

Granuloma inguinale should be suspected in patients with granulomatous lesions in the genital area. Any lesions on the genitalia or perineum, especially on swollen vulva, are suspect if found darkfield negative and seronegative, and a search for Donovan bodies should be instituted.

Care should be taken to go deep for a biopsy specimen or to assure that the surface has been cleared for secondary invaders by appropriate nonspecific local medication prior to taking specimens for study. Tissue, not exudate, should be examined for demonstration of Donovan bodies.

Local therapy may hasten healing of certain ulcers. In some chronic cases especially in the female with scarring, swelling, and deformity, surgery may be indicated in addition to specific antibiotic therapy.

GRANULOMA INGUINALE

Diagnosis:

Finding the Donovan body in scraping or biopsy material
Darkfield and STS (sufficient series to rule out syphilis)

Treatment:

Streptomycin--1.0 gm. intramuscularly 3 times a day for 7 to 10 days or
Aureomycin, terramycin, or chloramphenicol, orally--500 mg. 4 times a day for 12-1/2 days or
Chloramphenicol--4 gm. intramuscularly every 3 to 7 days for 3 doses

Treatment resistance or relapse:

Requires prolongation of therapy or change of antibiotic agent

Follow-up:

If lesion fails to heal or relapse occurs, a larger and longer course of therapy or change of antibiotic may be required. Malignant change must then be ruled out

Serologic Test for Syphilis (STS)

Monthly for 4 months

LYMPHOGRANULOMA INGUINALE (LGV)

Diagnosis:

Frei test (suggestive but not conclusive)

Treatment:

Sulfadiazine is the drug of choice--1.0 gm. 4 times a day for 12 to 15 days
Satisfactory results have been reported with antibiotics in these dosages:

Aureomycin, terramycin, or chloramphenicol, orally--500 mg. 4 times a day for 5 to 10 days or longer as indicated by clinical response
Chloramphenicol--2 gm. intramuscularly daily for 6 days

Lymphogranuloma Venereum (LGV) (Continued)

Follow-up:
If lesion does not heal, the possibility of coexistence of another disease or of erroneous diagnosis must be investigated. Prolongation of therapy or change of drug may prove necessary in some cases

Serologic Test for Syphilis (STS)
Monthly for 4 months

Acute or indolent inguinal adenitis with or without the finding of inconspicuous vesicular genital lesions should suggest the diagnosis of LGV. The finding of a positive Frei test is suggestive but not conclusive evidence of the diagnosis because it may be from a previous infection. Routine performance of complement-fixation test for LGV is not recommended. The clinical finding of acute inguinal adenitis, unaccompanied by genital lesions, usually is highly suggestive and is sufficient to permit administration of sulfonamide therapy. However, a differential diagnosis must be considered and investigated if there is not a rapid response to specific therapy. The chronic manifestations of LGV frequently enter into the differential diagnosis of other venereal diseases, as well as certain gynecologic, genitourinary, and proctologic conditions. For these, one should refer to standard texts.

Fluctuant buboes should be aspirated through normal skin with a #15 or #16 needle, but they never should be incised because of the slow healing which follows incision. Local treatment should consist of cleanliness, and the lesion should be left dry. The chronic manifestations such as esthiomene or rectal stricture call for appropriate medical and surgical management.

General Sanitation

Preventive Medicine Chapter in 1953 Edition of The Handbook of the Hospital Corps

The Handbook of the Hospital Corps, USN, 1953, contains an excellent chapter on Preventive Medicine which should be of special interest to all Hospital Corpsmen, particularly those on independent duty and those assigned to Environmental Sanitation.

Attention is invited to the fact that Medical Department officers also may find recommendations for preventive medicine in the chapter very informative and useful.

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Sample Meals

Recent inspection reports of shore activities indicate that many activities are routinely requiring the saving of sample meals for periods of from 48 to 72 hours to permit bacteriological sampling in the case of an outbreak of food-borne illness.

The question of the value of saving representative portions of meals was presented to the National Research Council Committee on Sanitary Engineering and Environment by liaison members of the Bureau of Medicine and Surgery. The general thought of the committee members was that the saving of a sample ration, which represents only a very small percentage of the food served, is not considered to be of sufficient epidemiological value to warrant adoption of this procedure as a general practice.

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